LArSoft minutes, 26-Oct-2011. -- Eric Church

LArSoft minutes appear at https://cdcvs.fnal.gov/redmine/projects/activity/larsoftsvn. (The location presumably at which you found these!) For further details of matters reported here drill down into the wiki, etc, at that redmine site. Everyone is welcome to attend the bi-weekly meetings. Next meeting will be 9-Nov-2011. Eric will be on travel at NNN; Brian will be there to represent the office of conveners. It will be back in the Racetrack, 7X0. We'll hear at least from the Handscanners and their competitive smackdown.

There are pdfs from Herb and from Eric on the Documents link on redmine today.

Herb showed the problems of combinatorics of picking hit triplets to form spacepoints in uBooNE. The tightest corrected time cut still leaves a 90% background. All hits are used an unlimited number of times. Herb has a setting for SpacepointServices useMC, which if set true, knows to chuck the fakes. More on this in Eric's talk. He's discovered that if useMC=F AND if he requires that the wire plane with the most hits only contributes one hit per spacepoint, not the unlimited amount he uses in which he gets the huge background, he can get a 90% pure spacepoints collection with high efficiency, where pure means they truly belong to the track. His spatial resolution with the filtered, useMC=F sample is a very respectable 2-ish mms. Herb is still formulating rules to make this better.

Eric showed a Kalman tracking update on uBooNE MC muons. We leave the details for the slides. Eric gets sub-5% momentum and sub-degree angular resolutions with useMC=T on the spacepoints. When He goes to the filtered, useMC=F sample of spacepoints the energy resolution drops to ~15-20%. Eric showed one 2.5 GeV/c muon which gave a poor momentum and showed the space points. They looked quite similar under the two different treatments, except for the handful of the ~2000 spacepoints in useMC=F mode which clump up when the track is parallel to the wire planes and so for which combinatorics on equal drift time hits unavoidably will lead to a noisy estimation and a few stray points way off the track. So, Eric imagines some simple rules to be imposed on the spacepoints that are fed to Track3DKalmanSPS that might recover a 10% momentum resolution. When he has time he'll report back on this.

Jen will give a handscan report next time. The LBNE design-assumed 80% nue CC efficiency seems to be about right, she said, but perhaps is an over-estimate at low energies. Jen demurred when pressed for early background rejection estimates. Watch this space in 2 wks!

Georgia will weigh in on uBooNE electronics simulation.

Details for the next meeting:

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>>> fnal location: Racetrack, 7th floor x-over
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